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| 10/713,819      | 11/14/2003  | Eisuke Wadahara      | 1402-03             | 2568             |

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IP GROUP OF DLA PIPER RUDNICK GRAY CARY US LLP  
1650 MARKET ST  
SUITE 4900  
PHILADELPHIA, PA 19103

EXAMINER

PIZIALI, ANDREW T

ART UNIT PAPER NUMBER

1771

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                               |                                 |  |
|------------------------------|-------------------------------|---------------------------------|--|
| <b>Office Action Summary</b> | Application No.<br>10/713,819 | Applicant(s)<br>WADAHARA ET AL. |  |
|                              | Examiner<br>Andrew T. Piziali | Art Unit<br>1771                |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 15 July 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 and 25-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of Group I and Species II, corresponding to claims 15-24, in the reply filed on 7/15/2005, is acknowledged. Claims 1-14 and 25-45 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and/or species.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 15-17, 20 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. (hereinafter referred to as '160) in view of USPN 4,906,506 to Nishimura et al. (hereinafter referred to as '506).

Regarding claims 15-17, 20 and 22-24, '160 discloses a reinforcing fiber substrate characterized in that said reinforcing fiber substrate includes a reinforcing fiber yarn group (B) arranged with reinforcing fiber yarns (2') in parallel to each other in one direction and a weft-direction auxiliary yarn group formed by auxiliary yarns (3) extending in a direction across said reinforcing fiber yarns (see entire document including Figures 1-9, the paragraph bridging columns 1 and 2, and column 3, lines 2-25).

'160 does not specifically mention the yield of the auxiliary yarns, but '160 does disclose that an equal number of reinforcing yarns and auxiliary yarns may be used and that the

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reinforcing yarns may comprise 1,000 to 30,000 filaments while the auxiliary yarns may comprise 100 to 800 filaments of substantially the same diameter (see Figures 1-9, Table 1 and column 6, lines 30-46). Considering that '160 discloses that the reinforcing substrate may comprise as little as 0.33% auxiliary filaments, it appears that '160 teaches or at least suggests that the yield may be 1% or less of the yield of the reinforcing yarns. It is also noted that '160 discloses that the quantity of reinforcing filaments may be varied based on the desired strength (column 3, lines 48-56). Therefore, in the event that it is shown that '160 does not specifically teach or suggest the claimed yield, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the yield, such as to 1% or less of the yield of the reinforcing yarns, because the yield directly affects the strength of the substrate and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

'160 does not specifically mention a resin material provided at 0.5 to 20% by weight at least on a surface of said reinforcing fiber substrate, but '506 discloses that it is known in the reinforcing fiber substrate art to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate to integrally bond the substrates (see entire document including column 4, lines 6-19). It would have been obvious to one having ordinary skill in the art at the time the invention was made to include resin material in 0.2 to 10 weight percent at least on a surface of a reinforcing fiber substrate, as taught by '506, because the resin would advantageously integrally bond the substrates.

Regarding claims 16 and 17, '160 discloses that the substrate may have a warp-direction auxiliary yarn group formed by auxiliary yarns (3') extending in a direction parallel to said

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reinforcing fiber yarns (see Figures 1-9). Regarding claim 16, '160 does not specifically mention the yield of the auxiliary yarns, but '160 does disclose that an equal number of reinforcing yarns and auxiliary yarns may be used and that the reinforcing yarns may comprise 1,000 to 30,000 filaments while the auxiliary yarns may comprise 100 to 800 filaments of substantially the same diameter (see Figures 1-9, Table 1 and column 6, lines 30-46). Considering that '160 discloses that the reinforcing substrate may comprise as little as 0.33% auxiliary filaments, it appears that '160 teaches or at least suggests that the yield may be 20% or less of the yield of the reinforcing yarns. It is also noted that '160 discloses that the quantity of reinforcing filaments may be varied based on the desired strength (column 3, lines 48-56). Therefore, in the event that it is shown that '160 does not specifically teach or suggest the claimed yield, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the yield, such as to 20% or less of the yield of the reinforcing yarns, because the yield directly affects the strength of the substrate and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 17, '160 discloses that the weft-direction auxiliary yarn group may be disposed on each surface of the substrate (see Figures 1-4).

Regarding claim 20, '506 discloses that the resin material may be present in a fiber-like condition (column 8, line 66 through column 10, line 34 and Figures 11-77).

Regarding claim 22, '160 does not specifically mention the claimed properties, but considering that the reinforcing fiber substrate taught by the applied prior art is substantially identical to the claimed reinforcing fiber substrate (unidirectional reinforcing fiber structure comprising warp and weft auxiliary yarns aligned in a specific orientation in a specific amount

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and also comprising resin in a specific shape and in a specific amount), it appears that if the composite reinforcing fiber volume fraction was 53 to 65% it would inherently possess the claimed properties.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claims 23 and 24, '160 does not specifically mention vacuum assisted injection molding or formation of a plurality of stacked and integrated preforms, but '160 does disclose that the substrate may be used for pressure molding (see Example 1) and considering that the reinforcing fiber substrate taught by the applied prior art is substantially identical to the claimed reinforcing fiber substrate (unidirectional reinforcing fiber structure comprising warp and weft auxiliary yarns aligned in a specific orientation in a specific amount and also comprising resin in a specific shape and in a specific amount), it appears that the substrate is capable of performing the intended uses. It is noted that the recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

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4. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. in view of USPN 4,906,506 to Nishimura et al. as applied to claims 15-17, 20 and 22-24 above, and further in view of USPN 3,881,522 to Lewis et al. (hereinafter referred to as Lewis).

'160 discloses that gaps are present between the reinforcing fibers (see Figures 1-9), but '160 does not specifically mention the mean gap distance between adjacent fibers. '160 is silent with regards to specific gap distances, therefore, it would have been necessary and thus obvious to look to the prior art for conventional gap distances. Lewis provides this conventional teaching showing that it is known in the unidirectional fabric art to vary the gap distance based on the desired flexibility and pliability (see entire document including column 3, lines 12-21). Lewis specifically mentions a gap distance of about 1 mm (see column 6, lines 16-33 and Figure 8). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to vary the distance between adjacent reinforcing fibers, such as from 0.1 to 1 mm, because the gap distance determines the flexibility and pliability of the fabric and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

5. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. in view of USPN 4,906,506 to Nishimura et al. as applied to claims 15-17, 20 and 22-24 above, and further in view of USPN 5,071,711 to Heck et al. (hereinafter referred to as Heck).

'506 discloses that the resin material may be studded on a surface of the reinforcing fiber substrate (column 8, line 66 through column 10, line 34 and Figures 11-77). '506 does not

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specifically mention the diameter of the studded resin material, but considering that '506 discloses that the fibers may have a diameter of up to 0.86 mm (column 4, lines 26-41) and considering that the studded resin material is illustrated as having a diameter less than the diameter of the fibers (Figures 11-77), it appears that '506 teaches or at least suggests that the studded resin material may have a diameter of less than 1 mm.

'506 is silent with regards to the studded resin mean height, therefore, it would have been necessary and thus obvious to look to the prior art for conventional resin heights. Heck provides this conventional teaching showing that it is known in the reinforcing fiber substrate art to use a resin height of from about 5 to about 80 microns (see entire document including column 3, lines 14-22). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make the studded resin height from about 5 to about 80 microns motivated by the expectation of successfully practicing the teachings of '506.

6. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 4,320,160 to Nishimura et al. in view of USPN 4,906,506 to Nishimura et al. as applied to claims 15-17, 20 and 22-24 above, and further in view of USPN 5,132,394 to Bockrath.

'160 does not specifically mention a sizing agent, but Bockrath discloses that it is known in the reinforcing fiber fabric art to apply a sizing agent to fibers to facilitate the weaving process and to avoid or minimize loss of fiber properties (see entire document including column 10, lines 29-38). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a sizing agent to the auxiliary fibers, because the sizing agent would facilitate the weaving process and would avoid or minimize loss of fiber properties.



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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T. Piziali whose telephone number is (571) 272-1541. The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on (571) 272-1478. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

atp

972 8/17/05  
**ANDREW T. PIZIALI**  
**PATENT EXAMINER**